

# Mutual Involvement of Information System, Users and Context: the Influence on the Acceptance of a Hospital Information System

M.C. Mazzoleni, P. Baiardi, I. Giorgi, G. Franchi, M. Cortesi, F. Sozzè.  
Medical Informatics Unit, Psychology Unit,  
Salvatore Maugeri Foundation, Medical Center of Pavia, Italy.

**Introduction.** The assessment of IT - aimed at the prevention of failures, so common in health-care - is a more and more important problem, particularly as regards hospital/clinical information systems.

Spreading the HIS inside the medical centre, and evaluating if, where and how to continue, we are interested into how much the HIS fits the needs of the users, how it is perceived, and which are the weak points of the global system (i.e. the information system, the users and the context in which they use it).

**Methods.** Acceptance of the HIS by the users (physicians (PHY) and nurses (NU)) had been established by means of two questionnaires (each of 5 questions + a conclusive one) developed in Italian, starting from the Davis' ones [1], aimed to the inspection of the constructs of perceived usefulness (PU) and ease of use (PEU) of IT. Each item was measured on a 7-point Likert scale, ranging from "Strongly disagree" (value -3), to "Strongly agree" (value +3), through the indifference (value 0). The usefulness score (SCU) and the ease of use score (SCE) are the equally weighted sum of the six individual items for each scale. Confidential pen and paper questionnaires were distributed to all the personnel of the clinical units where the HIS was available (nephrology (N), dialysis (D), general medicine (MG), and oncology (O)). General information (professional status, previous experience in use of PC, self-reported personal frequency of use of the system) were required too and were used as stratification variables for the analysis. 22 PHY and 59 NU (mean age 34.4±9.8 years) responded to the questionnaires. Non responders were 5%. Use of the system many times a day was much higher for PHY than NU (86% vs 27%).

Perceived Usefulness Scale	PHY	NU
Percentages of negative answers		
1..accomplish tasks more quickly	41	8
2.. improves my job performance	0	0
3.. increases my productivity	50	25
4...enhances my effectiveness	18	17
5.. makes it easier to do my job	32	12
6.Overall, I find ... useful	5	7
SCU	36	13

**Results and discussion.** *Influence of the users' characteristics:* no relationship is found between SCU, SCE and age; neither significant differences between experienced and inexperienced users for SCU,SCE, and particularly as regards learning and becoming skilful (item 1 and 5 PEU). A reduced participation to the analysis phase of the project for MG unit is an identifiable cause for the high (60%) percentage of negative SCU for PHY. *Influence of system's characteristics:* The low percentages of negative answers (Fig.1) to the items, show that the system is at least acceptable. The positive effect of the lab integration and of the availability of time oriented report is identifiable by the percentages (100%) of positive answers to the 6<sup>th</sup> item of PU scale for PHY of N,D and O unit, where patients are chronic. Limits in the modality of interaction (item 2 and 3 PEU) are underlined by the high percentage of negative answers (43%, 29%) for PHY of N,D unit where the data inspection activity is less standardized. *Influence of the context.* A previous experience of usage of speed accurately tailored to minimal needs packages induces PHY of O unit to think, (80% of negative answers to item 1 PU), that the HIS make them loose time, even if it doesn't affect their global perception. Availability of a adequate number of PC station may be determinant: PHY of MG unit, often compelling of the time-wasting sharing of PC, have the highest percentage of negative answers to the 3rd item PU scale (80%). A lack of organization may be emphasized, or at least not solved, by the introduction of an information system: this is the situation of N unit nurses whose negative answer percentages to each item of PU scale are higher than those of all other units (42,9,67,58,42,34 %).

[1] Davis F. MIS Quarterly,1989; 13:319-340

Perceived Ease of Use Scale	PHY	NU
Percentages of negative answers		
1.Learning to operate .. easy for me	9	8
2.... easy to get .. to do what I want	27	29
3... interaction .. clear	23	15
4... flexible to interact with	9	19
5... easy for me to become skilful..	14	12
6.Overall, I find .. easy to use	9	10
SCE	9	14